OIPE
JUN 14 2004
PATENT & TRADEMARK OFFICE
JC16

Fig. 1

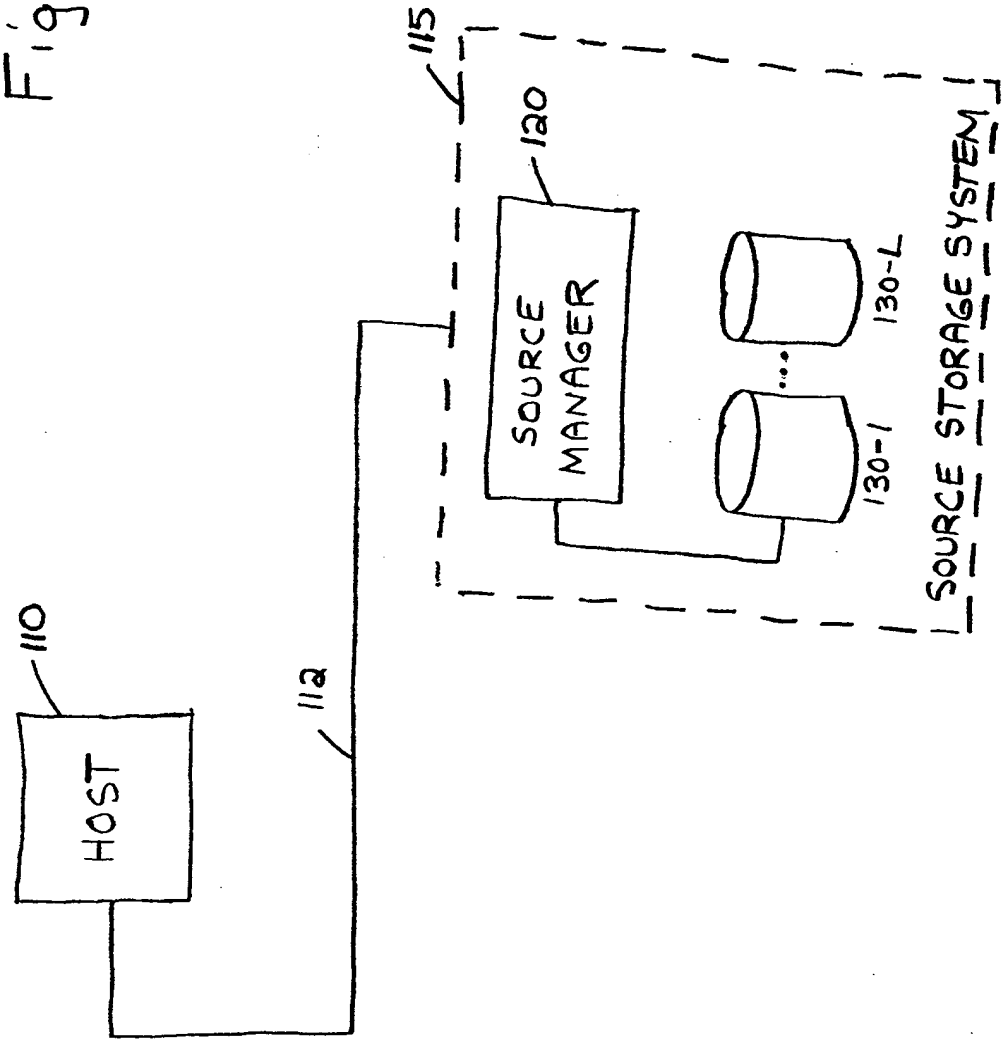
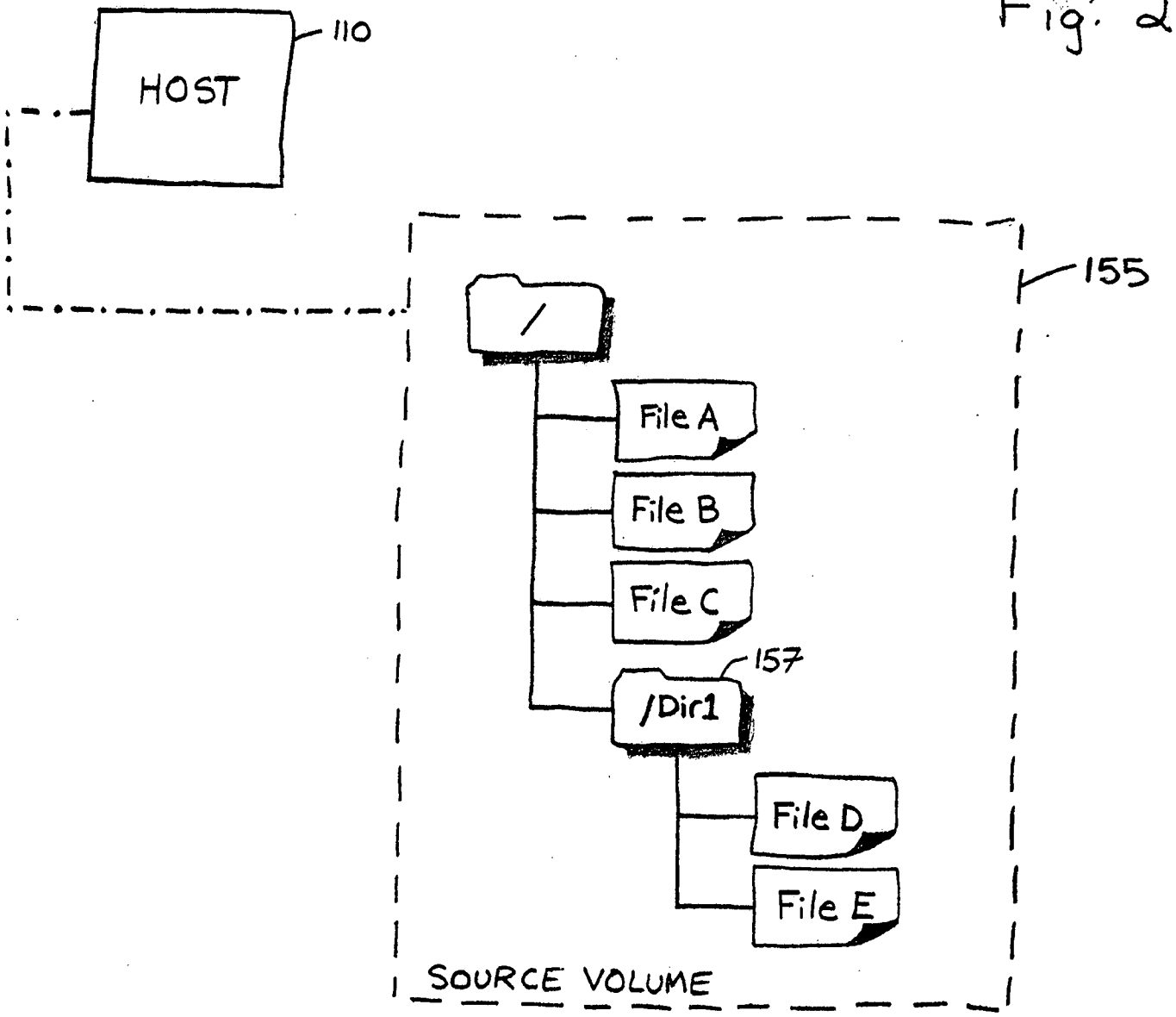


Fig. 2


HOST
110
155
/
File A
File B
File C
157
/Dir1
File D
File E
SOURCE VOLUME

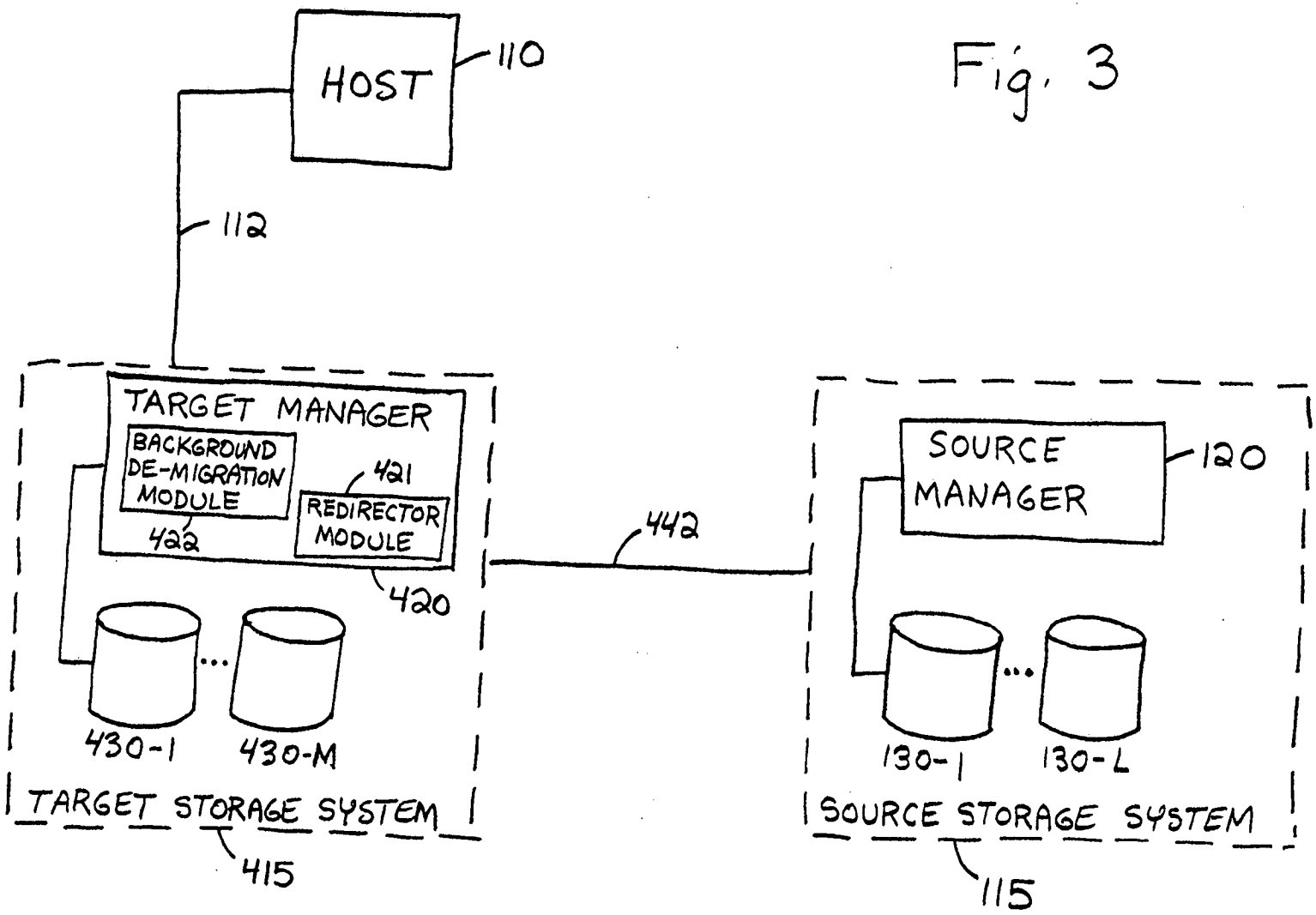

HOST
110
112
TARGET MANAGER
BACKGROUND DE-MIGRATION MODULE
422
421
REDIRECTOR MODULE
420
442
430-1
430-M
TARGET STORAGE SYSTEM
415
SOURCE MANAGER
120
130-1
130-L
SOURCE STORAGE SYSTEM
115

Fig. 3

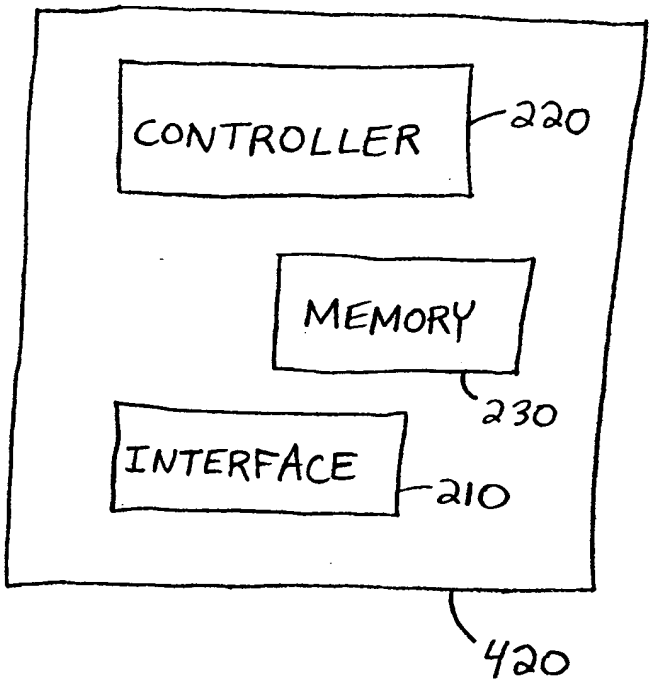


Fig. 4

525

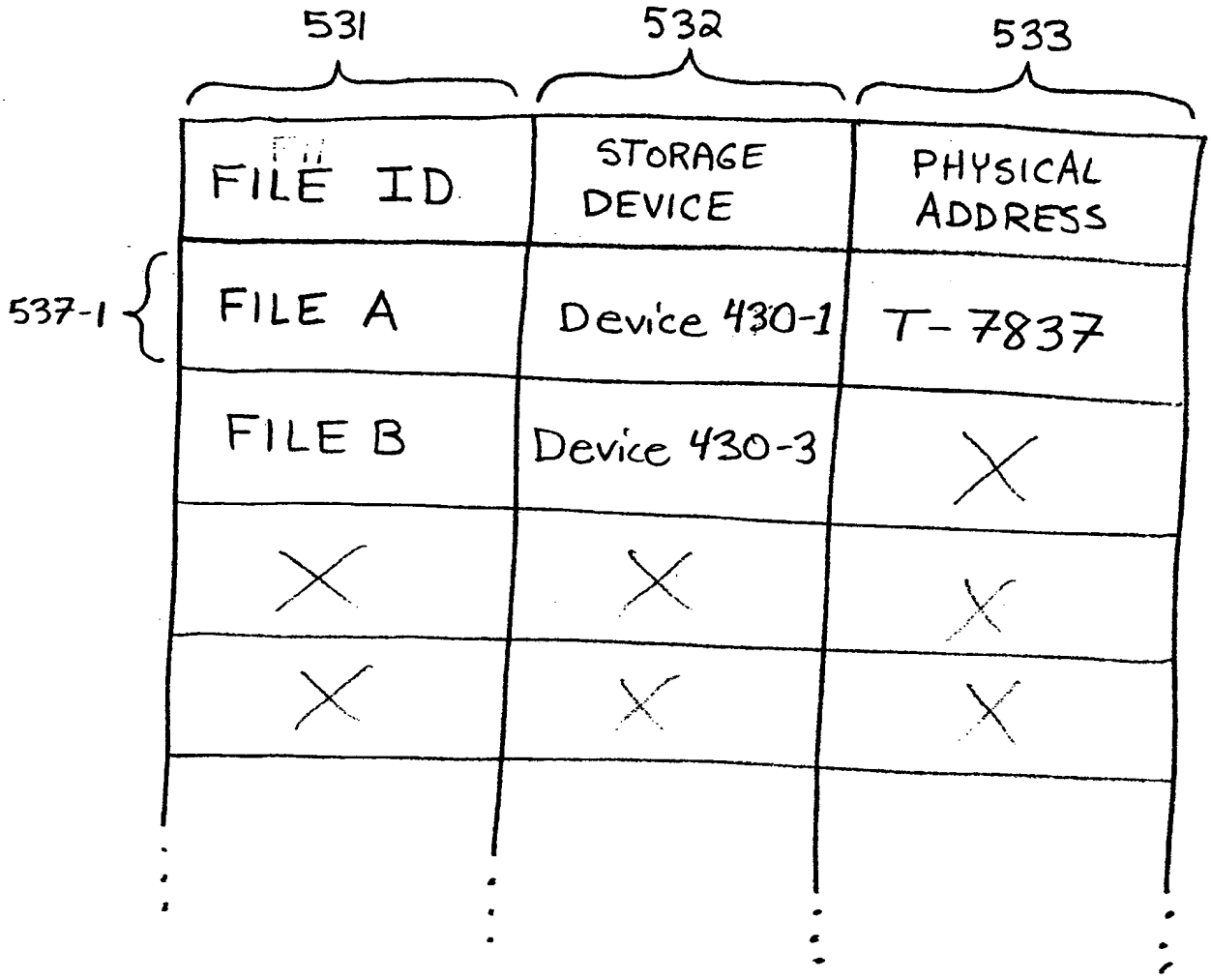

531
532
533
FILE ID
STORAGE DEVICE
PHYSICAL ADDRESS
537-1
FILE A
Device 430-1
T-7837
FILE B
Device 430-3

Fig. 5

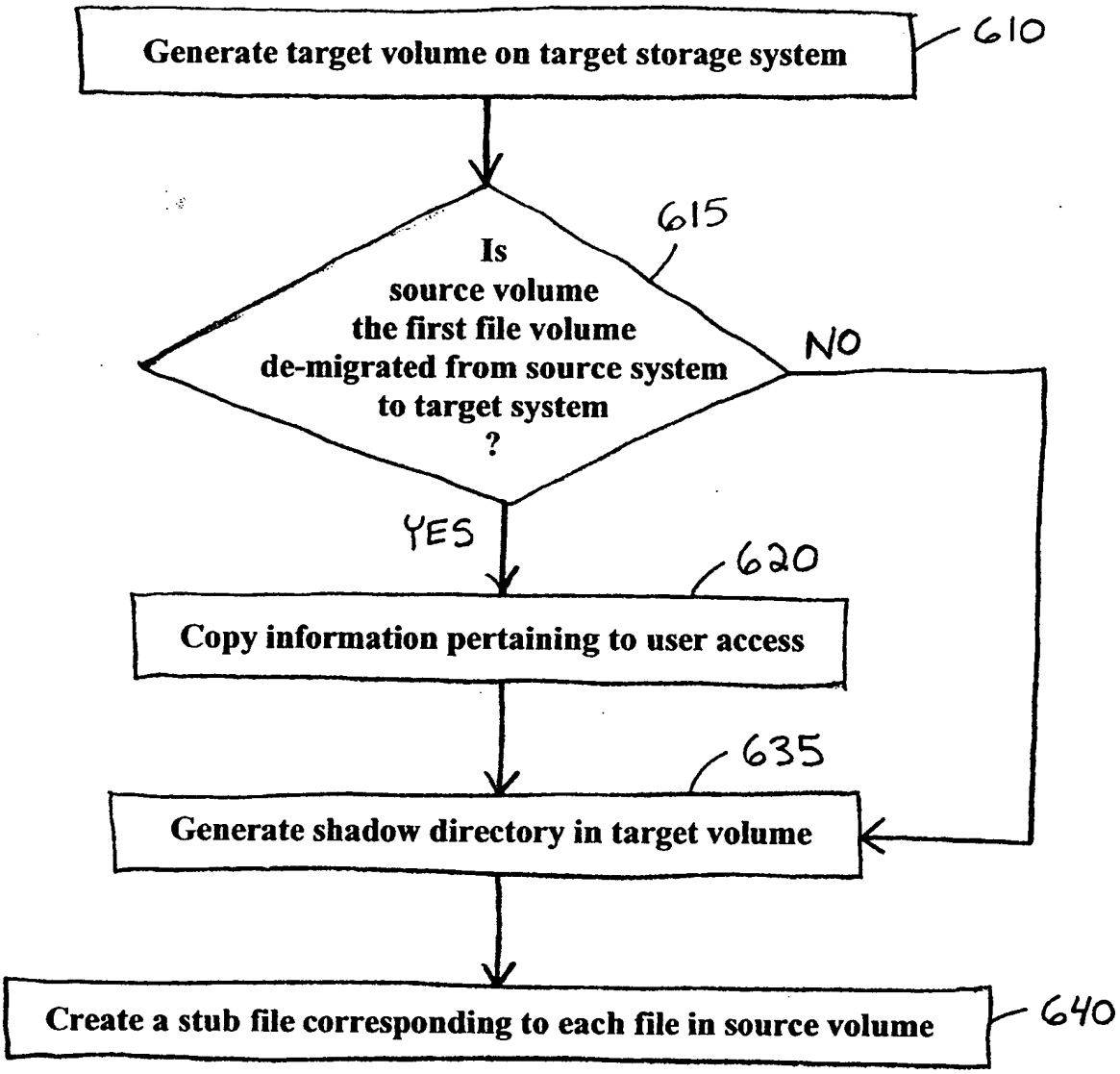

Generate target volume on target storage system
610
615
Is
source volume
the first file volume
de-migrated from source system
to target system
?
NO
YES
620
Copy information pertaining to user access
635
Generate shadow directory in target volume
Create a stub file corresponding to each file in source volume
640

Fig. 6

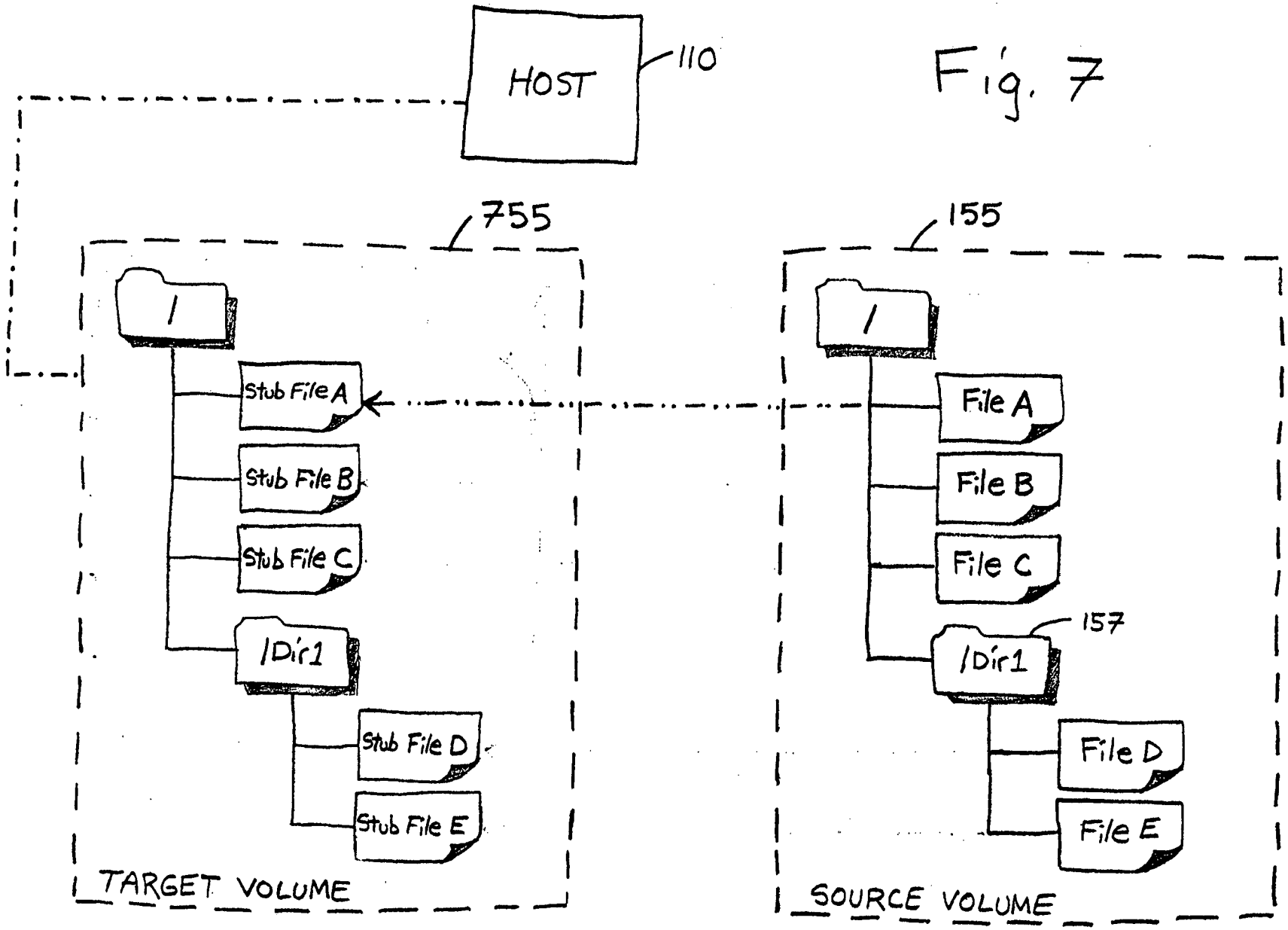

HOST
110
755
/
Stub File A
Stub File B
Stub File C
/Dir1
Stub File D
Stub File E
TARGET VOLUME
155
/
File A
File B
File C
157
/Dir1
File D
File E
SOURCE VOLUME

Fig. 7

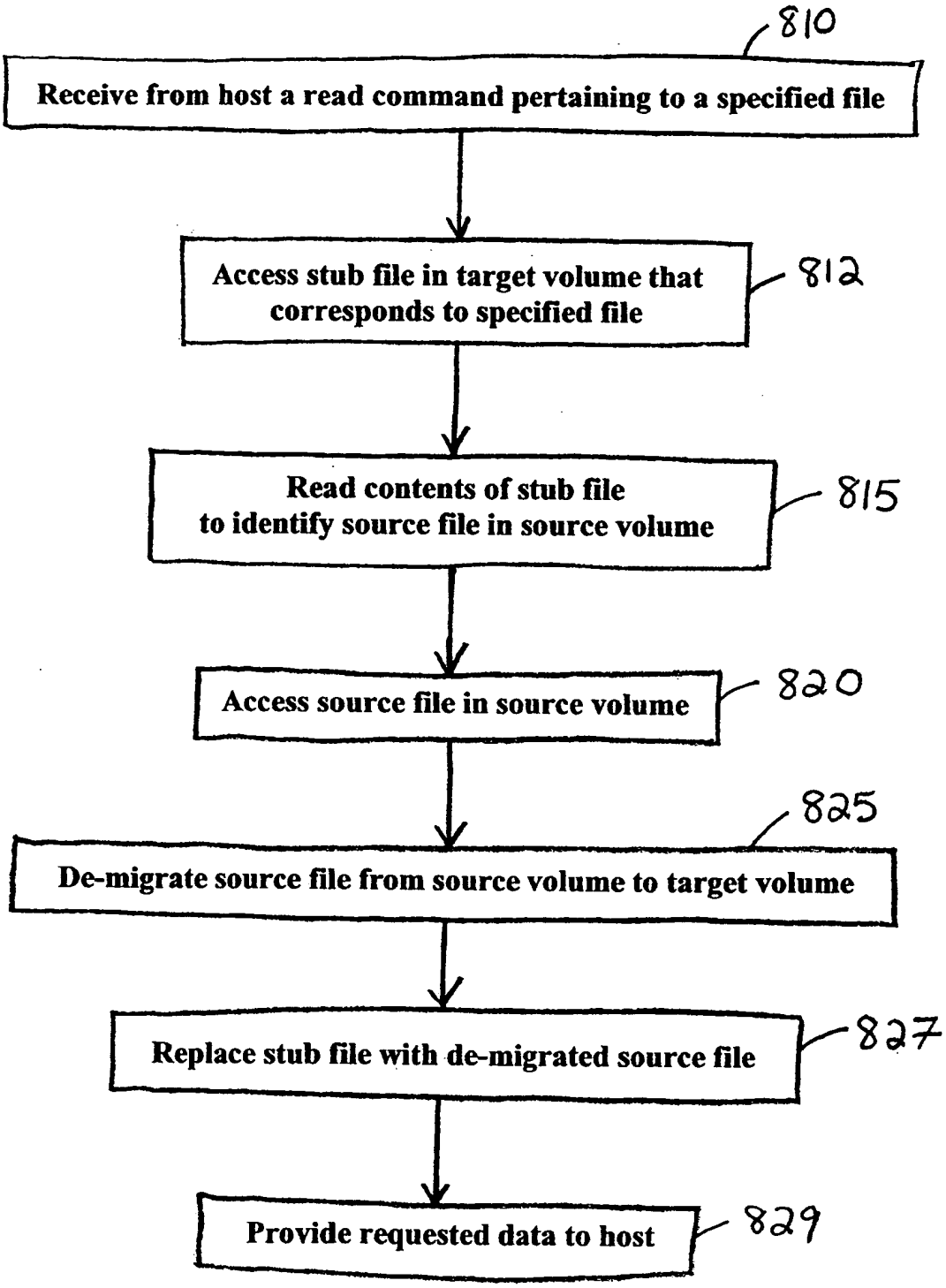

810
Receive from host a read command pertaining to a specified file
Access stub file in target volume that corresponds to specified file
812
Read contents of stub file to identify source file in source volume
815
Access source file in source volume
820
825
De-migrate source file from source volume to target volume
Replace stub file with de-migrated source file
827
Provide requested data to host
829

Fig. 8

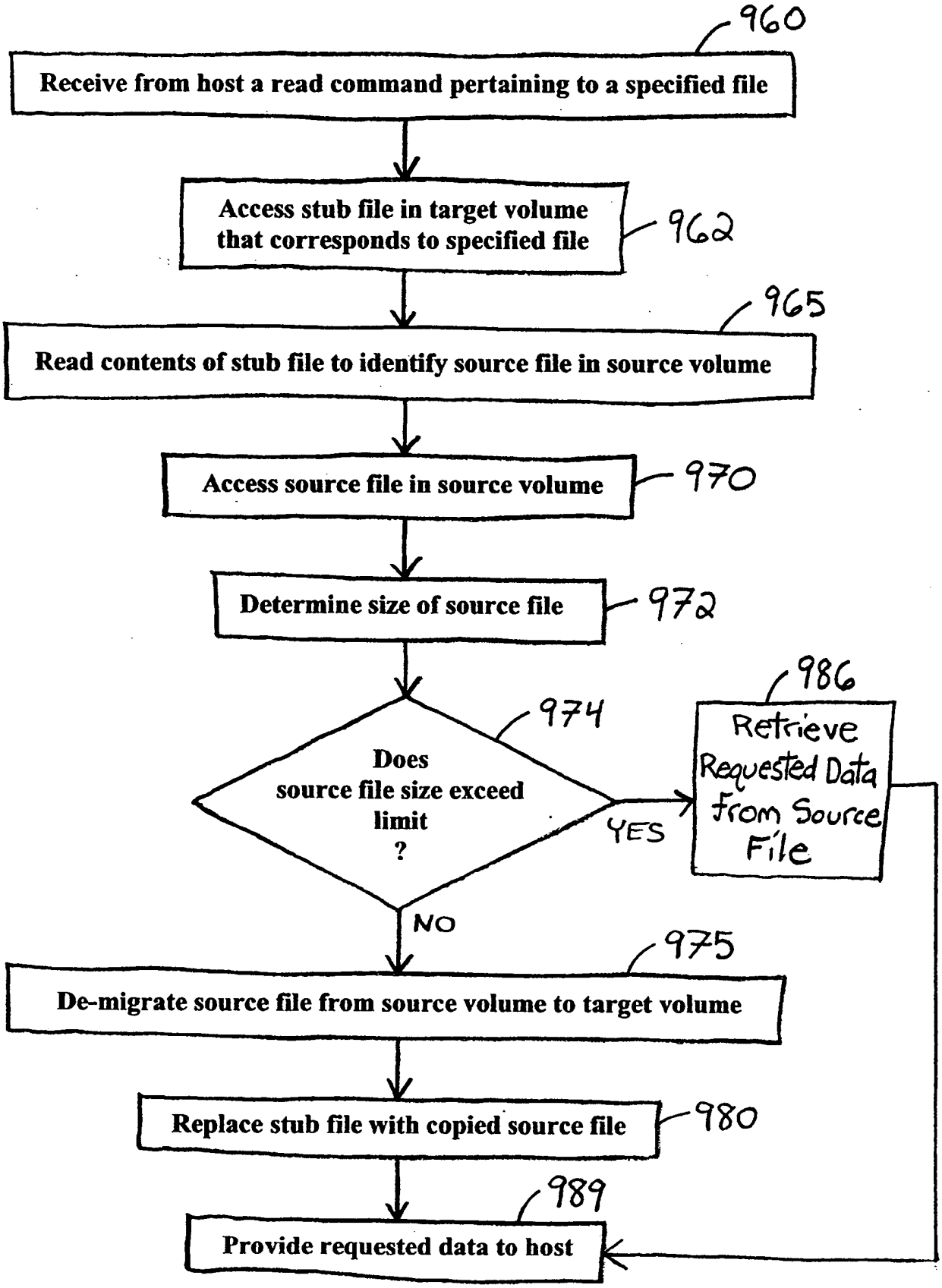

960
Receive from host a read command pertaining to a specified file
Access stub file in target volume that corresponds to specified file
962
965
Read contents of stub file to identify source file in source volume
Access source file in source volume
970
Determine size of source file
972
974
Does source file size exceed limit ?
YES
986
Retrieve Requested Data from Source File
NO
975
De-migrate source file from source volume to target volume
Replace stub file with copied source file
980
989
Provide requested data to host

Fig. 9

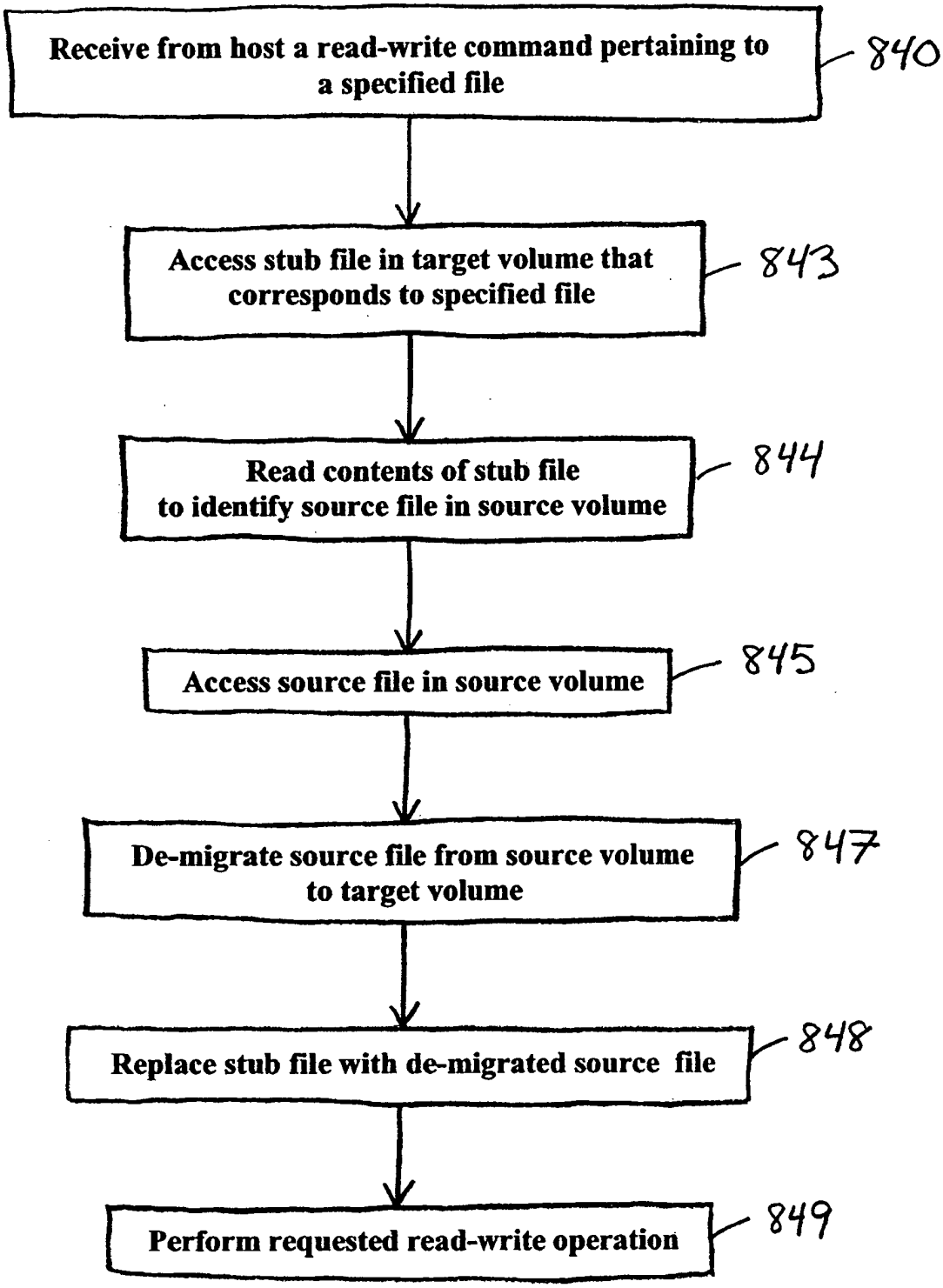

Receive from host a read-write command pertaining to a specified file
840
Access stub file in target volume that corresponds to specified file
843
Read contents of stub file to identify source file in source volume
844
Access source file in source volume
845
De-migrate source file from source volume to target volume
847
Replace stub file with de-migrated source file
848
Perform requested read-write operation
849

Fig. 10

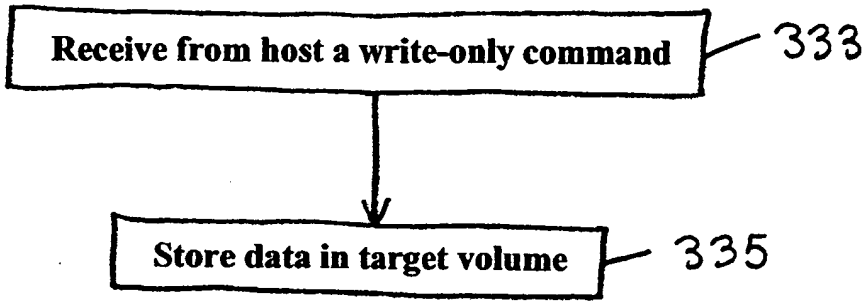

Receive from host a write-only command
333
Store data in target volume
335

Fig. 11

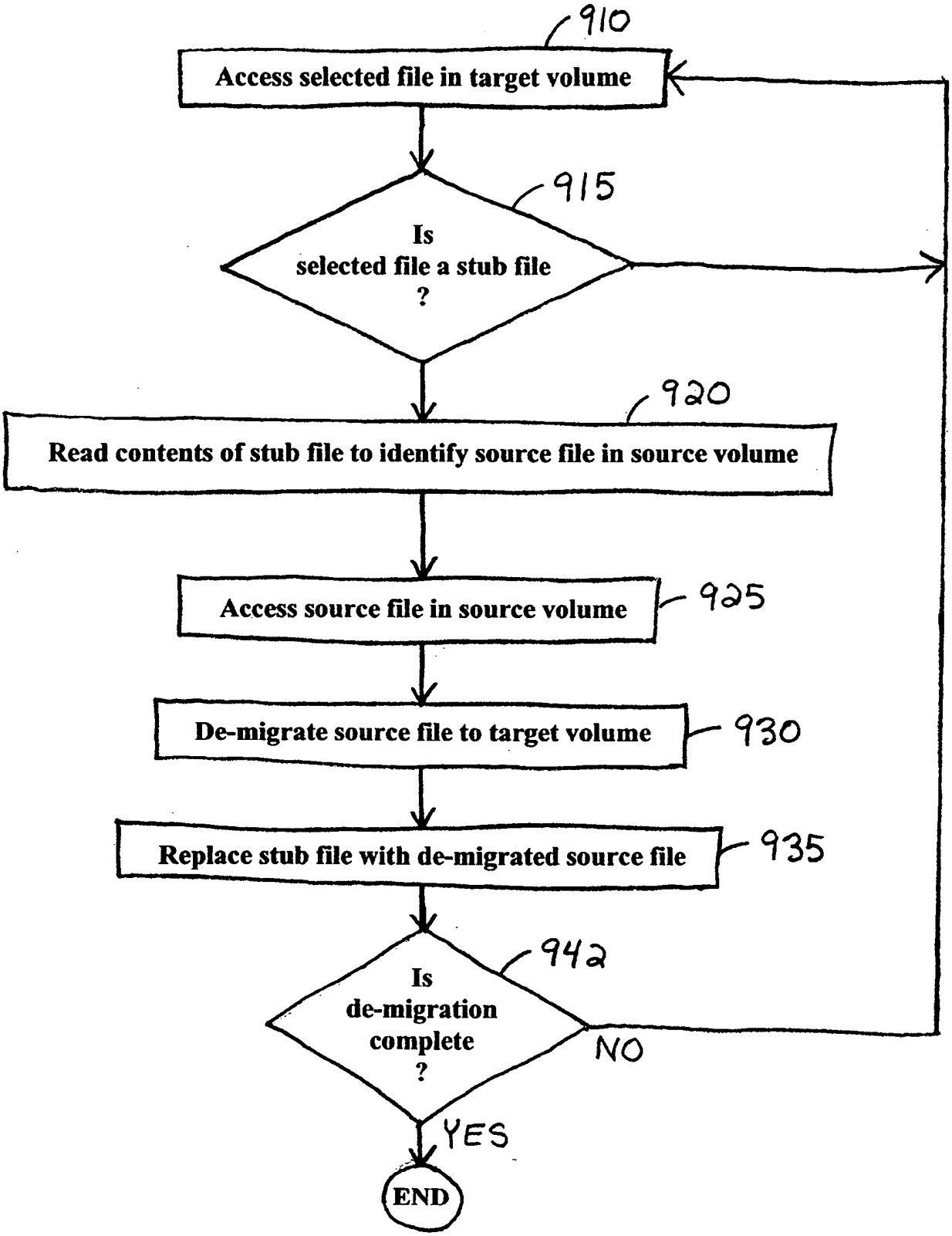

910
Access selected file in target volume
915
Is selected file a stub file ?
920
Read contents of stub file to identify source file in source volume
Access source file in source volume
925
De-migrate source file to target volume
930
Replace stub file with de-migrated source file
935
942
Is de-migration complete ?
NO
YES
END

Fig. 12